

## The Acquisition of Fog in Montane California Chaparral: Ecosystem Inputs and Use by Plants

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Semi-arid ecosystems of the Southwest U.S. are very sensitive to variation in precipitation and soil moisture (Xu et al. 2004, Austin et al. 2004). Soil moisture is one of, if not, the most limiting resource for primary productivity and net ecosystem carbon exchange in semi-arid ecosystems such as the chaparral (Huxman et al. 2004, Potts et al. 2006). And, chaparral ecosystems are expected to be especially impacted by reduction in available soil moisture and increases in extreme precipitation events associated with global warming in coming decades (Thomey et al. 2011, Bell et al. 2012, Biederman et al. 2016, Miranda et al. 2009). In most ecosystems, it is assumed that precipitation occurring as either snow or rain are the dominant sources that contribute to water balance and, consequently, productivity. For systems that are severely limited by water, other sources of water might be more important for the water balance than previously thought. Fog, which is usually considered minimal in inland areas, might demonstrate ameliorating effects for drought-characterized systems.



**Figure 1.** The thickness in the layers of fog is readily apparent at the Sky Oaks Biological Field Station in San Diego, CA.